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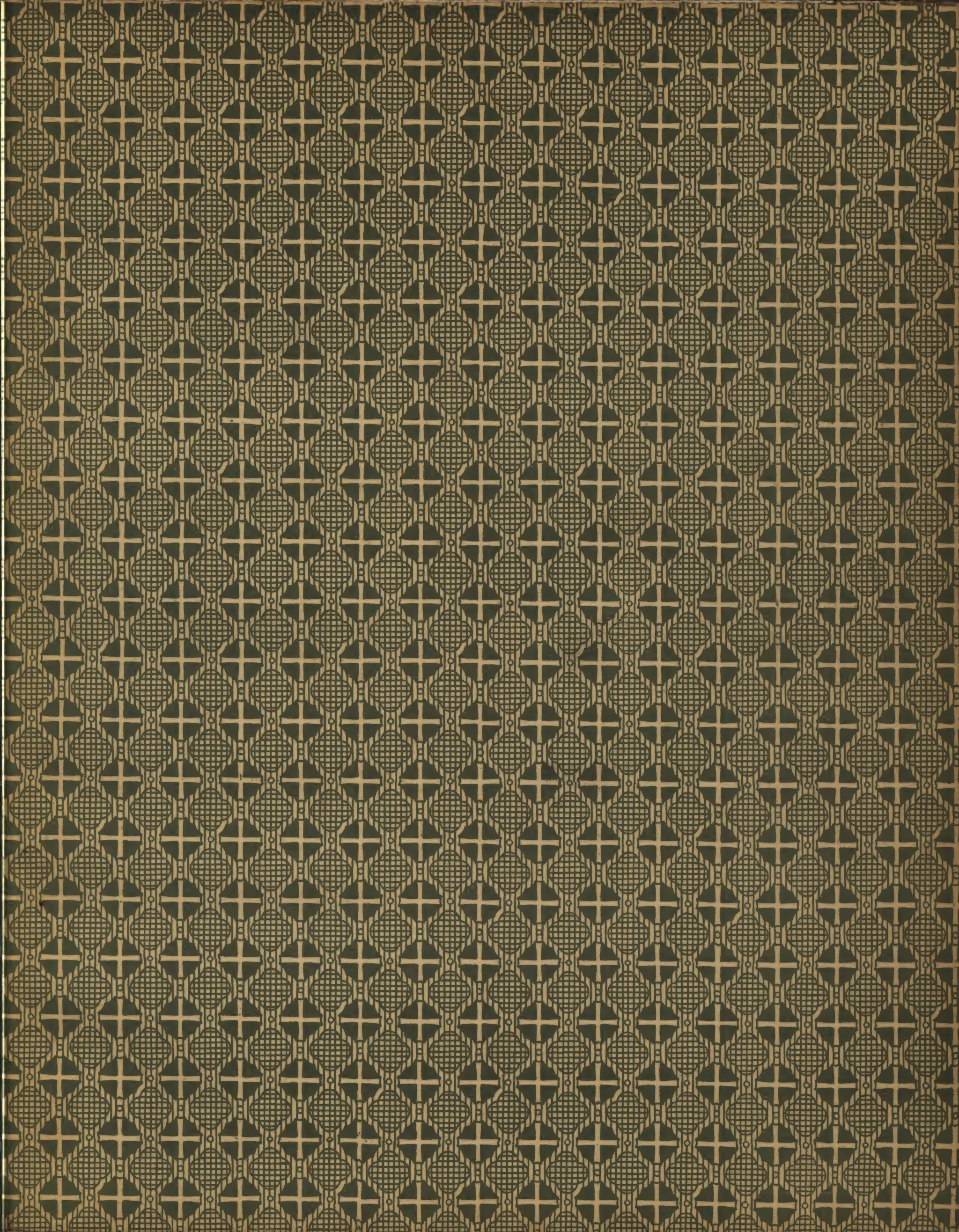
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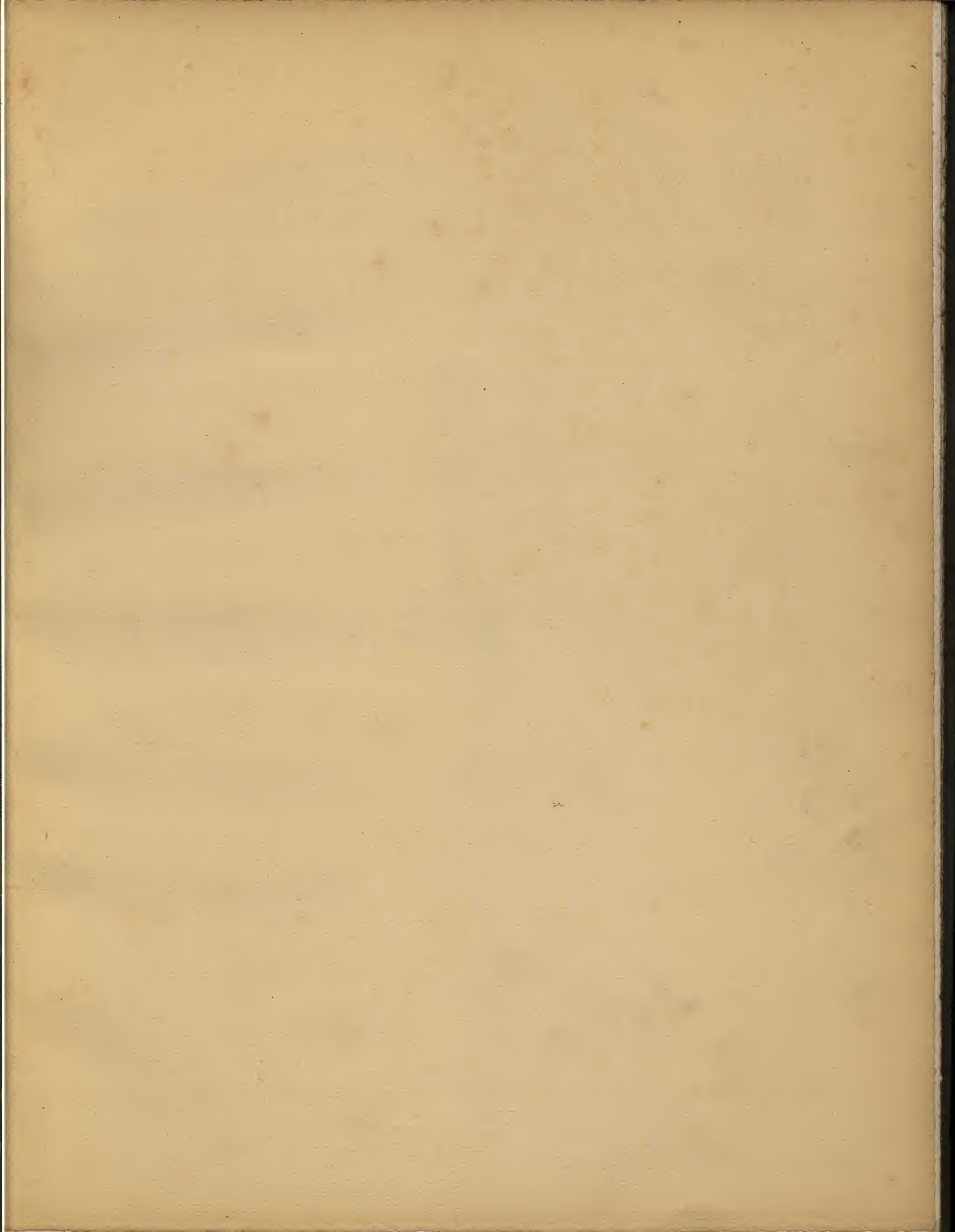
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SUBSTANCE, FORM *and* COLOR *through* CONCRETE

*A discussion of the problem
confronting the architects for
the Shrine of the Sacred Heart
at Washington, D. C.; how
that problem was met; and
what this solution means in
terms of modern building.*



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FOREWORD



HERE are two or three fundamentals about Mr. Earley's work in concrete, points he himself stresses, that should be considered before we look at the work itself, wonderful as that is.

We would like to quote verbatim, but memory is fickle, so what follows is merely an impression—just as the illustrations in this book fail to fully convey the marvelous blending of richness and softness, that form the splendor of this church.

"As you know, the architect is the author and arbiter of all worth while building. He has conserved the best from the past. He, age after age, carries us forward into an even better future.

"To him, not long ago, came a sturdy young chap called Concrete, saying, 'I have strength, I have youth, I have adaptability, I will work for you cheaply and well. Give me the hardest and most important work you have.'

"Perhaps, that was a rather presumptuous request. It was all right for the young man to request rough and rugged work where he could demonstrate his steadiness, his reliability. But to give him the more intricate work, work requiring a certain finesse, might jeopardize that work, and perhaps unwarrantedly discredit the young man.

"So Concrete was put to work. And he built bridges, laid foundations, piled up factories, stretched permanent highways from city to city. Wherever heavy strains, hard wear and generally rough handling were to be borne, there Concrete labored at his apprenticeship. And the work

he produced was watched by the architect and found to be good. In fact, the architect found that Concrete lived up to his promise of strength, of durability, of adaptability, of economy. Concrete had justified its existence as a fundamental building material."

Through a new technique, concrete has been made an architectural medium of the highest order.

The Church of the Sacred Heart doubtless represents a maximum of requirements and must be considered, not only in the light of a great achievement, but as a guarantee of the ability of concrete to serve under less severe conditions, the ordinary requirements of an architect's practice.

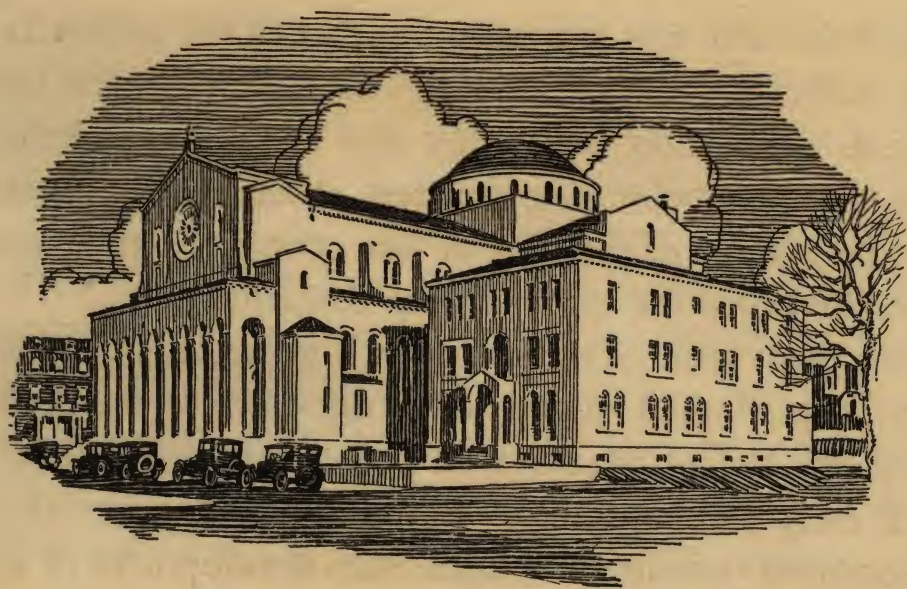
This new technique adds to concrete an architecturally acceptable appearance which, coupled with its well-known structural value, makes it the most complete of all structural materials. It embodies in itself all that is necessary for construction and decoration.

In the development of this new technique, Atlas Portland Cement was selected as the cement best suited to the work: therefore, the Atlas Portland Cement Company takes great pleasure in presenting this book to the architects of America, as evidence of an accomplishment which will place in their hands a new and more perfect tool, better balanced to the economics of our time than any other building material.

—Atlas







WHAT CONCRETE MEANT TO THE ARCHITECT IN THE DESIGN OF THE SHRINE OF THE SACRED HEART

As told by F. B. MURPHY, of Murphy & Olmsted, Architects



THE concept of a church of today involves the association of certain structural forms, the fusing of them by the architect into harmonious combinations of proportion and of scale and finally, the elaboration and refinement of the fabric of the structure to further enhance its beauty.

The organism of the vaulted basilica was for the first time, very probably, given definite form, during the latter half of the eleventh century in Lombardy. This province has been most prodigal as a source of inspiration in church design in recent years. The Northern Italian styles, the styles of the Comacine guilds, the Romano-Ravennate and the Byzanto-Ravennate were all doubtless influenced in some measure by the ancient basilicas of Jerusalem and of Baalbec, yet these western examples displayed both ingenuity and originality to a pronounced degree.

In the search for a form for the Shrine of the Sacred Heart, the inspiring charm and appeal of such early specimens, as Santo Ambrogio at Milan, Santa Maria e' Sigismonda of Rivolta d'Addo and San Flaviano at Montefiascone, were not overlooked. To deprecate the value of a study of San Vitale at Ravenna, Santa Maria Maggiore at Bergamo and San Zeno at Verona, would also have been neglectful of sources of genuine beauty of a pristine freshness not so often encountered in these days of world-wide research.

No well-defined urge was felt upon the part of the architects to reproduce literally some particular example of religious edifice, chosen from the above described period. The effort was rather that of choosing elements normally related to one another, belonging perhaps, according to generally accepted opinion, to some portion of the four or five centuries representing the gamut of what is broadly called the north Italian Romanesque.

A cruciform plan, wide of nave and with generous side aisles, permitting free circulation, was adopted, as best suited not alone to the practical demands of a parish church, but in retention of certain of the symbolic interest that attaches to all early and middle age monuments of ecclesiastical art. This horizontal disposition permitted the maximum development of seating requirements and satisfied the liturgical demands in the simplest possible manner.

The introduction of the transept, while not precisely recalling the earliest examples of church architecture, nevertheless seems to have justified its use in historic instances, and in the present church, has been one of such practical advantage as to constitute it a necessity. No effort was made to foist upon the scheme for the structure, extraneous elements that congregational necessities did not enforce, and no reservation was made for the conspicuous display of one element to the advantage of another.

The attempt was, on the whole, to weld together features that had to be, and to consider the various facades, exterior and interior, as strongly inter-related and the easy and natural outgrowth of the ground plan.

A retention of the simple mode of expression, common to the best work of Rome, Ravenna and other centers of early Christianity, was sought with, however, an avoidance of straining after effect of examples common enough, showing incomplete or bad draftsmanship. Such character of conventionalization, as prevailed in the early work, was deemed most suited to the decorative scheme, and no perspective effects were introduced into the rendition of such themes as were extracted from well authenticated sources; also an avoidance of too great a degree of stiffness, due to archaism, was felt prudent.

For the interpretation of the interior decorations this principle was established, namely, that no imitation would be permitted. Every effort was made to avoid invading the province of one material with another, because it was desired that the result finally obtained should be judged upon its own merit, and not on merit obtained through reminiscence of historic examples executed in totally different materials.

The broad use of color on the interior was suggested by the extensive areas of the walls, vaults and dome, which in the Romanesque period were decorated through the free use of rare marbles and mosaics, rich in color and interest. These materials are no longer available for such large areas within the limits of permissible cost, but the decorative need remains. For we still feel that walls should be covered with an enduring material of such character, as to express the elements of design—piers, free-standing columns and arches.

In the search for materials that might ably render with permanence the complicated decorative detail desired on the interior, concrete, which through a new technique has been made an architectural medium of the highest order, was carefully considered and finally adopted. No hesitancy was felt because of the nature of concrete, for it was frankly accepted as a strong, durable and structurally satisfactory material. The problem was whether concrete through the new technique, would be sufficiently versatile to yield all the intricate detail and variety in color, necessary to successfully carry out the design. Precedent of a rich and varied nature was unavailable; little too, was gained by a perusal of the documents on the subject. The failure could be great, but the possibilities of success were most liberal, and were fully realized.

The project was first considered as an abstract problem of decoration, and was drawn and colored as seemed best. The design was then translated into the technique of architectural concrete of which the colors and textures were immediately available in their final values. These colors and textures were then studied in relation to the lighting peculiar to this interior, both with regard to the natural light emanating from the stained glass and to the artificial light.

Details of enrichment surpassing in freedom and variety what is usually considered possible, were used to lend interest to pier, column, wall and vault. Pulvin capitals from San Pietro, Toscanella, similar capitals inspired by San Vitale of Ravenna; Christian symbols in many forms, decorative bands and other motifs from S. S. Sergius and Bacchus as well as Santa Sophia at Constantinople, giving picturesqueness of appropriate dignity to the interior of this Church, were all produced in concrete and with exquisite craftsmanship. It was believed that the use, as described, of decorative motifs of two-fold interest, while unusual, would impress the truths of sacred teaching in a manner much more forcible and enduring than the customary introduction of ornament devoid of traditional meaning, and would revive interest in these

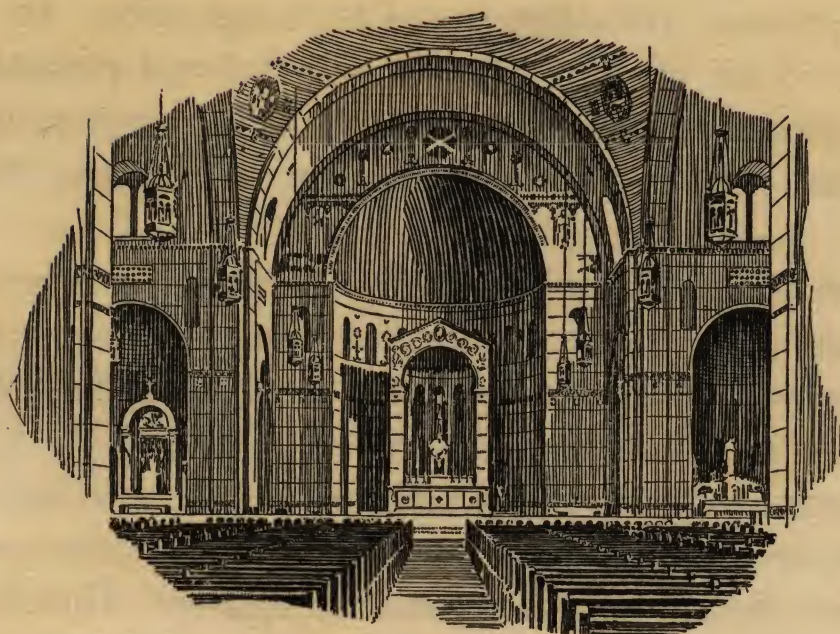
ancient teachings and impress indelibly upon our minds, the lives and sufferings of the heroes and martyrs of the Christian Church.

Dominating the making of the dressing for the entire structure of the church, was the desire that the architectural treatment be one of permanent durability. All transient qualities were avoided and the flimsiness which so frequently designates, in outstanding insincerity, a too large number of the edifices erected to the glory of the Almighty, was supplanted by the straightforward employment of such honest materials as could be brought within the purview of the financial outlay.









WHAT CONCRETE MEANS TO THE CRAFTSMEN WHO ARE ENTRUSTED WITH INTERPRETING ARCHITECTURAL DESIGN

By JOHN J. EARLEY, *Architectural Sculptor*



FIVE hundred years ago in Florence, Italy, there lived contemporaneously two great craftsmen, men of extraordinary ability. Each left a name which has lived with honor long after him. To Donatello may be given the title not only of sculptor but of the first great sculptor of the Renaissance, and to Luca della Robbia fell the honor of enriching the world by a new art. These two men were often brought into competition. They had a very clear understanding of the restraint imposed on their art by the cost of producing their works in stone or bronze. We read in the story of Luca della Robbia's life that he and Donatello competed for the execution of a colossal head to be placed on the cupola of the Cathedral, but the project was abandoned for lack of funds. Afterwards a joint commission was given to them to carve two altars for the chapels of St. Peter and St. Paul in the Duomo. Again the money was not forthcoming and two unfinished bas-reliefs begun by Luca were all that were made.

Such experiences as these coupled with an impetuous character, which longed to see a work completed as soon as conceived, made Luca impatient with the slow production of works in stone and bronze, and prompted him to seek a new, an easier and less costly material in which to give quick,

spontaneous expression to the beauties of his imagination. He found in terra cotta a material to his liking. This he perfected and preserved against the elements with glazes of many colors, in it he made permanent all his works without the labor, time and expense necessary to reproduce them in the old materials.

We are now in need of a new artistic material; one better in keeping with the character of our time, quicker, less costly than the medium of Luca della Robbia, by just so much as the general movement of our time is quicker, more economic than that of his.

In our country, industry employs nearly all the labor and there is little available for the arts. The time which may properly be allowed for construction is short, but the structure is expected to endure. Therefore, a new material must be permanent, must require less effort and less time to work.

Craftsmen have always known that for the production of three dimensional forms plastic materials are the very best, and, because of the great facility of such materials, have used them wherever possible. The facility of plastic materials is based upon the general law that less force is required to mould and form a plastic than a solid. Now, therefore, because force whether mechanical or human may always be measured in terms of expense, plasticity endows a material with basically economic properties. However, facility and economy alone are not enough; there must be permanence to guarantee the preservation of the works themselves; nor is form alone enough, there must be color and texture to meet the requirements of an architecturally acceptable appearance. So, a new material must be easy, spontaneous, inexpensive, permanent and subject to any form, color and texture.

Unfortunately, many of the plastic materials in general use did not possess great permanence. Few of them were suitable for the preservation of important work, and those only under the most favorable conditions. None was found able to withstand the rigors of our North American climate. The lack in permanence was, of course, their greatest shortcoming but added to this were unsatisfactory color and texture. All of them were entirely too fine in texture for architectural purposes and required artificial surfaces; all were of unsuitable color or of insufficient strength in color, which necessitated painting.

These things effectively kept plastic materials out of construction until the development of portland cement added that permanence, which warranted

their use in construction and their investigation as a remedy for the need of a new architectural medium.

This is what attracted us to concrete, its character as a plastic which would harden into a strong, permanent mass. The history of concrete, its universally honorable service, are convincing and sufficiently satisfying to justify the expenditure of a lifetime of study and effort to give to it the necessary appearance. Is it unreasonable to assume that concrete, a permanent plastic, when taught to take form, color and texture at the will of the designer and under the direction of the craftsman, will be the long-looked-for material?

Although concrete is a plastic material and although the forming of concrete is a casting process, nevertheless concrete has certain peculiarities which prevent the technique developed for other plastic materials from being applied to it. These peculiarities are principally that the volume of material required to fill a given mould is greater with concrete than with other material; concrete requires a greater time to set or to become fixed in volume; no considerable increase in volume accompanies the setting; there is a tendency for the solids and the water which constitute the mass to separate, and for the solids to settle to the bottom of the mould, to fall away from the vertical surfaces and from the underside of horizontal ones. Another peculiarity of concrete is that the cement-water paste, which in the relation of its volume to that of the aggregate constitutes but a minor part of the mass, dominates the appearance of the whole.

It was this apparent incongruity with the reasonable supposition that a mass should reflect the characteristics of its dominant element, which first indicated the theory upon which the modern technique for architectural concrete is based. Namely, the aggregate is the dominant element of concrete, therefore it should exercise a dominating influence on the structure and appearance. The importance of the aggregate is the principle which has been developed by all our investigations into the causes which control the appearance of concrete. It is by constructing a skeleton of aggregate that volume-changes, segregations and settlement are prevented. It is by causing the aggregates to occupy a very great part of the surface that predetermined color and texture are obtained. It is the aggregate which takes the form and gives the color and texture. The cement is a binary material which gives the necessary permanence, it also contributes to the appearance. The water is a carrier which places the material with the least amount of work.

When Murphy and Olmsted, the architects, employed my studio to execute in concrete the interior of the Shrine of the Sacred Heart, I think they opened to us the greatest opportunity of this time in our profession and I am very thankful for it. Not only is the design such as required in its execution the most skillful craftsmanship, but the selection of concrete as a medium, was a most valuable expression of confidence in the permanence of concrete and the technique which we had developed for its artistic control. The most careful, painstaking study was put into the designing and detailing of this interior by the architects. The wealth of knowledge and skill which constitutes the matter of the plastic arts and the scientific information which modern investigation has disclosed, were brought to bear by us upon the problem of producing in concrete decorative effects, similar to those which were produced centuries ago by highly skilled craftsmen in other materials, by other methods, under different conditions, but so beautifully that they became standards of excellence for all time.

To keep our thoughts in order, it was necessary to divide the problem into two phases. In the first, we tried to absorb, to thoroughly understand the design from the point of view of the architect, to see the project through his eyes, to be in perfect sympathy with it. We studied the records of those buildings which are the accepted works of reference in style, analyzed the values, the relative importance of the various motifs and planned the optical sensations which should be produced by the forms, colors and quality of surface. The establishment of the optical sensations, or the decorative effects was the important, in fact, the sole object of the work done in the first phase of the problem.

All of the work, in the first phase, was done without relation to the materials which were to be used, but later it became the reason for the selection and arrangement of these materials.

It may seem that we were presumptuous to have undertaken to produce in one material, concrete, the decorative effects which were produced, in years now gone, in many materials such as cut and polished marbles, ceramic and marble mosaics. In reality, concrete, because of its plastic nature and because of a technique which makes the aggregate take the form and produce the color and texture, was able to assume as many hues and values as there were aggregates to produce them. The same marbles as were used in the ancient churches could be used as aggregates in modern concrete; many

stones of great decorative value, but too hard to be worked, were available for concrete; mosaic materials of all kinds could be used in concrete without serious loss in color.

To reproduce a given effect, it is not necessary to use, as an aggregate in concrete, exactly the same materials as were used in the example. The same material often may be used with satisfactory results, but again, it may as often be quite impossible to do so. Time has been kind to some of our ancient examples. Its deposits and its erosion have softened the colors and improved the surfaces. I am convinced that we would be surprised could we see some of our beloved masterpieces in their original condition. The present effect of the old work can however be reproduced by arranging and modifying the composition of the aggregate, so that the light reflected by it is of the same character as that from the original.

There is an optical law which states that a given set of stimuli can produce but one optical sensation, and that a given optical sensation can be produced by many sets of stimuli. For the latter statement let all artists be truly thankful, for, if only the former obtained, a scheme of decoration embodying a tree would require that a tree be put where the design required it, because only a tree could look like a tree. But fortunately that is not the case: colors can be grouped and arranged so that the light reflected from them gives a sensation similar to that of a tree, and a picture may be satisfactorily substituted in the design for the real thing.

A practical application of all this would mean that if time had changed the color and the surface of a marble slab, and thereby made it very beautiful but also impossible of reproduction, except by the action of time itself on a similar piece of marble, nevertheless the effect of the old slab could be reproduced in concrete, without an attempt to imitate its physical characteristics, but by controlling the reflected light through the blending of aggregates of different colors. When we learned that the aggregate would be the dominating element of architectural concrete, and that the character and position of the particles could be controlled, there was opened to us a treasure of color, knowledge and experience, such as we never dared to hope would be at our disposal until it had been developed for this new material through time and by experience. By considering the particles of aggregate as spots of color in juxtaposition, all the knowledge and much of the technique of the impressionist, or the pointillist school of painting, was immediately applicable to concrete.

This school places color spots, side by side with one another, in such a manner that they blend in the air to hues of even value and chroma. The wonderful clarity of color, the vibrant quality of surface, which distinguishes the paintings of this school, are found also in the concrete. Colors for which no aggregate has yet been found, purples, blue-greens and yellow-reds are successfully made; simple colors such as blue, green and yellow are blended in various ways, producing remarkably beautiful compound hues which may be added to the number of the component colors as follows: blue, blue-green, green-blue, green, green-yellow, yellow-green, yellow. This wonderfully increases the number of colors available from a smaller number of good aggregates.

The enrichment of our palette is of inestimable worth. Such a multiplicity of hues is a property of architectural concrete, unequalled by any other masonry material, in fact it is rivaled only by the great medium of the mosaicist, which however is not adaptable to form in three dimensions. One must not imagine that the blending of colors is as easy to do as to suggest. Success can be assured only by the highest technical skill in the use of aggregates, by colors which are sufficiently pure. Any red and any blue will not produce an acceptable purple, and only hues which have been properly balanced, as to value and chroma, will produce satisfying results.

Concrete is so wonderfully responsive that it has wound a spell around me and around the men in my studio. When the work is taken from the moulds each morning and the colors are exposed, there is something so spectacular, so magical about it, that our enthusiasm never abates. Many of the men have fallen under the spell to such an extent that they object to working with other materials. Architects and artists who have used concrete feel this attraction just as much as these craftsmen.

Its use is being rapidly extended. The limit of its possibilities is not yet in sight and will not be, until a completed knowledge of its constituent materials and the phenomena attendant on them permits us to take full advantage of the properties of concrete. Even now, in its present state of development, concrete is an architectural material without a rival. In its simplest, as well as its most ornate form, it is extremely interesting. To me, after its facility and permanence, which have to do with what we may perhaps call the mechanical properties of concrete, its quality of surface, which is of its aesthetic properties, is the most attractive. The many faceted particles of aggregate make an almost perfectly diffusing surface with great depth and vibration.

The eroded surfaces on chateau, cathedral and bastion have a quality which is optically correct, and which is present to a superlative degree in surface-treated concrete of the exposed aggregate type. The light, reflected from this type of surface, casts a haze over it which is pleasing and which may be augmented by soft coloring in the aggregate. The diffusing surface acts in much the same way as a thin veil over colored silks.

It may be surprising to learn of the importance which we attach to large surfaces. Although no one has a greater love for ornament than we, nevertheless that love has, we must admit, been somewhat disciplined by experience. We quickly feel the need of decoration but more strongly the need of a general excellence of form, a general refinement to which to apply the decoration. If the interior of the Shrine of the Sacred Heart were stripped of its ornaments leaving only the general division of the masses, the color and quality of the surfaces, it would still be a great church. The quality of light reflected from its walls permeates the atmosphere as delicate perfume might. This is primarily what an architect may expect from concrete.

We have designed surfaces to fill the most exacting requirements and to meet the greatest differences in scale, surfaces which lose their texture and resolve to uniform hue at twenty-five feet, surfaces which hold their texture at five hundred feet. For these purposes, aggregates, measuring from less than one-quarter to more than one and one-half inches, were used. A change in texture without a change in the general color adds effectively to the drawing of panels and friezes. Changes in color, without changes in plane or texture, can be used as well in modern as in ancient buildings, but the practice of such expedience of design has been difficult, because materials of sufficient variety of color cannot be had under proper control nor with economy.

Our illustrations clearly show division of mass without a break in the surface. Color changes in soffits, around openings and in spandrels, have enhanced the beauty of the design in much the same way as rendering improves drawing. The usefulness of concrete, as shown in this Church, may be extended to projects of greatly different character, not only to beautiful churches and great buildings, but to homes and little buildings. The success of each undertaking will depend upon the ability of the designer and the skill of the craftsman working with him.

Decorative details are the jewels of a building. They should be used as such with judgment and good taste. Labor spent in their making is a joy to

the worker. After the big responsibility of properly interpreting the architecture, the execution of the ornamental details is a delight. In this church where the symbolism was so faithfully carried out, where the most interesting little devices, things of really good and fundamentally correct, decorative form, expressed ideas as big as the human mind can receive, we found work which would try the worth of any material. Never once did concrete fail us. Referring to the phase in which only design was considered, and to that in which only methods and materials were considered, we are able to say that this concrete did not once necessitate a modification of design. We were able to produce every form, color and texture which the architect required.

Materials for this work were gathered from many places on this continent, from France, Italy and Africa. Materials so rare and hard that they have been beyond the reach of builders; quartz and onyx which are only used as jewels; ceramics colored by the oxides of rare metals and burned to melting heat. Particles of marble plated with gold, materials such as might fill the dreams of an Arabian night, were moulded into the walls of this church. All this was made possible by concrete, because in concrete these materials could be used in granular form; could be flowed into place with water, the great vehicle of creation; and could be bound firmly into a permanent solid by the magic of portland cement, and Atlas Portland Cement was selected as the cement best suited to the work. Concrete, because of its plasticity, because of its economy, brought the cost of this work within a sum which could be paid by the congregation building this church. The cost of the interior decorations bear reasonable relation to the total cost of the church. They did not increase the cost of the whole by any more than they increased the real and the apparent value. It may well be that the decorations increased the value by much more than their cost.

This work is presented with the idea that it was a real test of the architectural value of concrete, a test with maximum requirements. And the suggestion is made that the performance of concrete, under these conditions, is conclusive evidence of the ease, spontaneity, economy, perfection of form, color and textures, and the other marks of a great architectural medium which make it just as much, and in much the same way, superior to comparable materials, as the medium of Luca della Robbia was superior to the other accepted materials of his time.



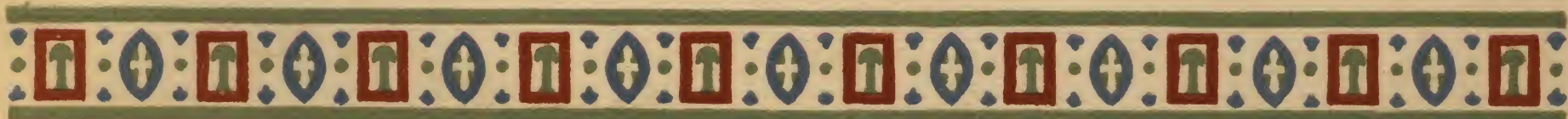




The following pages show

S E V E N
V I E W S

*of the Church of the Sacred
Heart which will serve to give
a more comprehensive under-
standing of the complete interior*







THE "PARTI" CONSISTS OF A NAVE OF FIVE BAYS, ONE OF WHICH SERVES IN THE GROUND FLOOR AS VESTIBULE AND ABOVE AS CHOIR. VAULT AND DOME ARE ENTIRELY OF MASONRY CONSTRUCTION, THE ROOF OF THE NAVE RESTING DIRECTLY UPON THE VAULTING CONSTRUCTION, THE THRUST OF WHICH IS TAKEN UP BY BUTTRESSES OF REQUIRED DIMENSION WHICH APPEAR ON THE EXTERIOR IN A LOGICAL WAY. THE USE OF GUASTAVINO ACOUSTIC TILING IS RATHER GENERAL. ALL SURFACES THAT WERE DEEMED OF A NATURE TO PRODUCE UNDUE RESONANCE WERE TREATED WITH IT, AND THE CURVED SURFACES OF NAVE WITH THOSE OF SIDE AISLES, AS WELL AS THE DOME, ARE TREATED WITH THE SAME MATERIAL.



MUCH OF THE DETAIL REFLECTS INSPIRATION OF ST. VITALE OF THE SCHOOL OF RAVENNA—SHOWN BY MASONS' WORKS TO HAVE BEEN THE WORK OF GREEK ARTISTS, AND OF SURPRISING DELICACY AND REFINEMENT, RENDERED WITH A SPIRIT OF PLAYFULNESS WHICH ENLIVENED MANY OF THE DETAILS OF THE EARLY CHRISTIAN ARTISANS. TWINING IVY, ACANTHUS, AND OTHER FLORAL DEVICES ARE INTERWOVEN IN QUAIN FORMS TO RELIEVE A POSSIBLE EFFECT OF TOO GREAT SEVERITY.



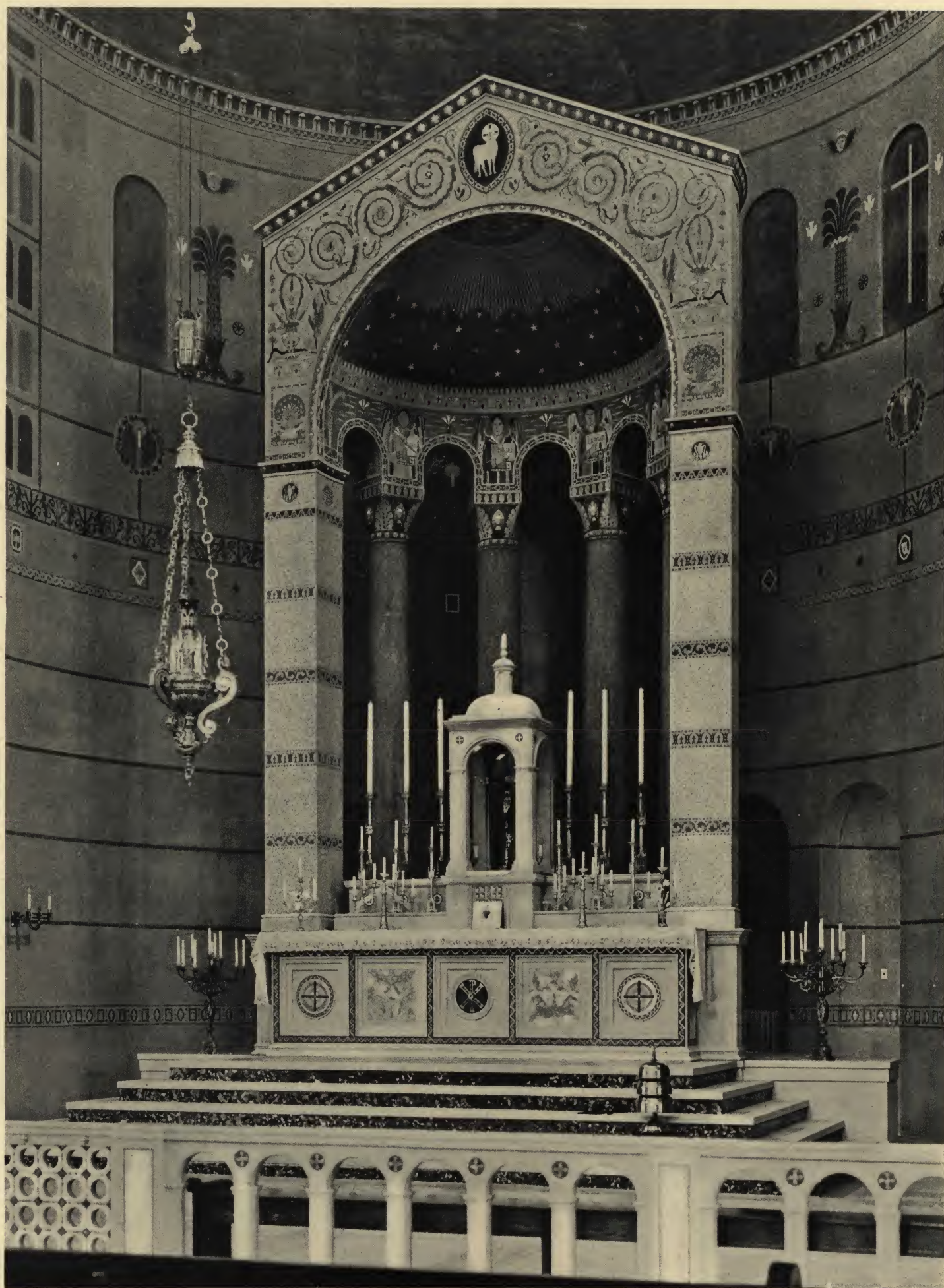
GENEROUS SIDE AISLES, PERMITTING FREE CIRCULATION, WERE ADOPTED AS BEST SUITED NOT ALONE TO THE PRACTICAL DEMANDS OF A PARISH CHURCH, BUT IN THE RETENTION OF CERTAIN OF THE SYMBOLIC INTEREST THAT ATTACHES TO ALL EARLY AND MIDDLE-AGE MONUMENTS OF ECCLESIASTICAL ART.



THE CIRCULAR VAULTS OF THE NAVE AND TRANSEPTS MEET AT THE PENDENTIVES OF THE LOW SPRINGING DOME, OF WHICH THE HEIGHT ABOVE THE FLOOR LEVEL IS SOME NINETY FEET. THROUGH THESE ARCHES, UNDER THE DOME, ONE APPROACHES THE SANCTUARY, WHERE ENSCONCED UNDER THE BLUE DOME OF THE BALDACHINE OR CIBORIUM, IS THE MAIN ALTAR, FASHIONED OF BOTTICINO MARBLE AND VENETIAN MOSAICS IN RICH TONES OF BLUE, GOLD AND GREEN. IN THE NORTH TRANSEPT, IN THE NICHE, IS THE SIDE ALTAR TO THE SACRED HEART, AND IN A SIMILAR PLACE, IN THE SOUTH TRANSEPT, WILL BE PLACED THE ALTAR DEDICATED TO THE BLESSED VIRGIN. ON THE NORTH AND SOUTH AXIS OF THE DOME, IN THE COLONNADE OF THE NORTH TRANSEPT, WILL BE PLACED THE BAPTISMAL FONT, WHILE IN A LIKE PLACE IN THE SOUTH TRANSEPT, THE ALTAR TO ST. JOSEPH IS DEDICATED.



THE TRIUMPHAL ARCH, VISIBLE IMMEDIATELY UPON PASSING THROUGH THE PORTICO, INTO THE INTERIOR, ENCLOSING THE SANCTUARY, RECALLS IN SCALE AND GRANDEUR MANY CHURCHES OF THE EARLY DAYS OF CHRISTIANITY IN THE CITY OF ROME ITSELF. IN THE CENTER, THE GREAT SYMBOL OF THE BLESSED TRINITY, IN BLUE AND GOLD IN THE FORM OF A TRIPLE CHI RHO, THE SACRED MONOGRAM FOR CHRIST, DEMONSTRATING THE INSEPARABILITY OF CHRIST WITH THE TRINITY. THE TWELVE DOVES, SURROUNDING THIS MOTIF, REPRESENT THE TWELVE APOSTLES. TWO SYMBOLIC MEDALLIONS APPEAR ON EITHER SIDE. BELOW ARE SHOWN THE FIGURES OF THE APOSTLES, ST. PETER AND ST. PAUL IN THE COLONNADE. AT THE FOOT OF THE ARCH ARE INDICATED TWO STAGS, REPRESENTING THE FAITHFUL OF THE CHURCH DRINKING AT THE WELL OF TRUTH.

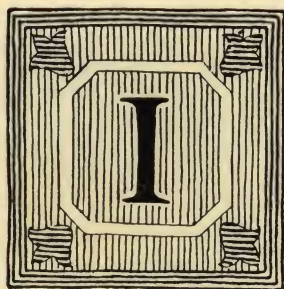


MORE ELABORATELY CONCEIVED THAN OTHER PORTIONS OF THE INTERIOR, THE CIBORIUM OVER THE MAIN ALTAR BRINGS TO A CLIMAX THE DECORATIVE TREATMENT OF THE CHURCH. IN THE CENTER OF THE PEDIMENT IS SEEN THE LAMB, SYMBOL OF CHRIST. ON EITHER SIDE IS THE VINE, EMBLEMATIC OF THE SAVIOR, WITH BIRDS EATING OF THE FRUIT OF THE VINE. BELOW IS SEEN THE PEACOCK, SACRED SYMBOL OF THE RESURRECTION AND IMMORTALITY. ON THE PIER CAPITALS BELOW, THE PELICAN IS SHOWN, TEARING OPEN HER BREAST TO FEED HER YOUNG WITH HER OWN BLOOD. THIS IS ONE OF THE EARLIEST KNOWN SYMBOLS SHOWING THE REDEMPTION OF MANKIND THROUGH THE SUFFERINGS OF JESUS CHRIST.



DETAILS OF AN ORDER OF ENRICHMENT, SURPASSING USUAL POSSIBILITIES IN FREEDOM AS WELL AS IN VARIETY, WERE CONCEIVED TO LEND INTEREST TO PIER OR COLUMN, CAPITAL, WALL SURFACE OR VAULTING. PULVIN CAPITALS FROM SAN PIETRO, TOSCANELLA, WHOSE NAIVE TREATMENT SHOWS THEM TO BE OF PRE-LOMBARDIC ORIGIN, SERVE TO INTRODUCE THE SYMBOLIC DEVICE OF THE CROSS WITH FLOWERS, THE CRUX-GEMMATA, EMBLEM OF THE OBEDIENCE AND ATONEMENT OF CHRIST.





IN PRESENTING *a subject with such great fascination for the mind of an architect as the decorative problem of the Sacred Heart Church, the Atlas Portland Cement Company feels that the impression may be conveyed that concrete by this process is a material designed solely for work of this particular character. They have, therefore, appended pictures showing the application of the same principles to work of widely differing character.*

In each instance the purpose has been served equally well, and each project, whether great or small, has by reason of the satisfactory solution become an earnest, a guarantee of satisfaction in other problems sufficiently divergent to cover the whole range of architectural character.



THE SIAMESE EMBASSY AT WASHINGTON, JAMES R. MARSHALL, ARCHITECT, IS FINISHED WITH CONCRETE OF THE EXPOSED AGGREGATE TYPE AND ON A BRICK MASONRY BASE. IT IS ONE OF THE BEST KNOWN STUCCO BUILDINGS IN AMERICA. THE ARCHITECTURAL QUALITY OF ITS SURFACES HAS NOT DEPRECIATED.



AN APARTMENT BUILDING IN WASHINGTON, M. G. LEPLY, ARCHITECT, THE FIRST TWO STORIES OF WHICH ARE FINISHED WITH CONCRETE. THE COST WAS ONLY A FRACTION OF WHAT IT WOULD HAVE BEEN IN STONE. ITS SATISFACTORY USE ON THIS BUILDING IS TESTIMONY TO A MORE GENERAL USEFULNESS AND A PARTICULAR VALUE TO BUILDINGS OF THIS CHARACTER.





THESE TWO PAGES SHOW DETAILS FROM THE
SAME APARTMENT BUILDING, ILLUSTRATING THE
EXCELLENCE OF CRAFTSMANSHIP WHICH THE
BASIC ECONOMY OF CONCRETE MAKES POSSIBLE.



A REMODELLED BUSINESS
BUILDING AT WASHING-
TON, GEO. N. RAY, ARCHI-
TECT. CONCRETE HAS
AGAIN SERVED THE ARCHI-
TECT'S PURPOSE IN AN-
OTHER FIELD. ONLY A
TRULY GREAT MATERIAL
CAN SUCCESSFULLY MEET
SO MANY DIFFERENT
REQUIREMENTS.



SHELTER AT HAINS POINT, POTOMAC PARK, WASHINGTON. DESIGNED AND BUILT BY THE U.S. BUREAU OF PUBLIC BUILDINGS AND GROUNDS. THE BUILDING SHOWS THE USE OF CONCRETE ON A SMALL PROJECT. THE WALLS ARE FINISHED WITH STUCCO OF THE EXPOSED AGGREGATE TYPE ON A BRICK BASE. WHETHER THE PROJECT BE LARGE OR SMALL, CONCRETE AND STUCCO ARE EQUALLY USEFUL THROUGH THE WHOLE RANGE OF ARCHITECTURAL PRACTICE.



MR. LORADO TAFT, SCULPTOR OF THE FOUNTAIN OF TIME IN WASHINGTON PARK, CHICAGO, IN SPEAKING OF THIS WORK OF ART IN CONCRETE, SAID:

"THE FACT IS WE WERE CORNERED—WE WERE UP AGAINST IT. THE MONUMENT HAD GROWN TO BE SO LONG, SO COMPLICATED, THAT I COULD NOT EVEN GET A BID ON THE CARVING OF IT—I DID NOT CARE TO PUT IT INTO BRONZE: MY THOUGHT HAD BEEN STONE OR SOMETHING SIMILAR TO STONE."

CONCRETE SOLVED THIS PROBLEM IN ART WITH ECONOMY AND WHEN THE WORK WAS FINISHED MR. TAFT SAID:

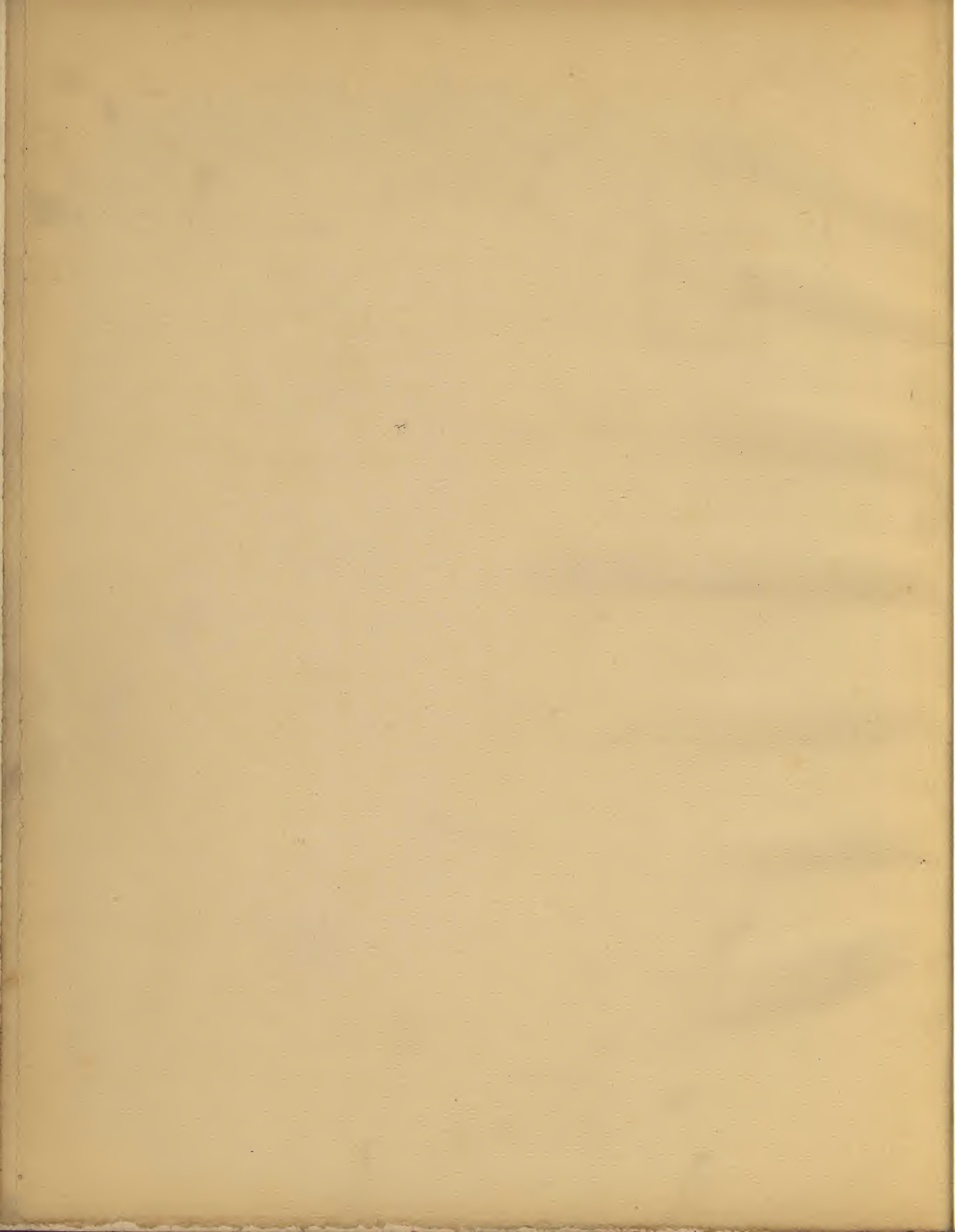
"THERE IS NOT A STONE THAT AMERICA PRODUCES—NOT A MATERIAL, EVEN TENNESSEE MARBLE THAT I WOULD PREFER TO THE COLOR AND EFFECT WE HAVE DOWN THERE ON THE MONUMENT."

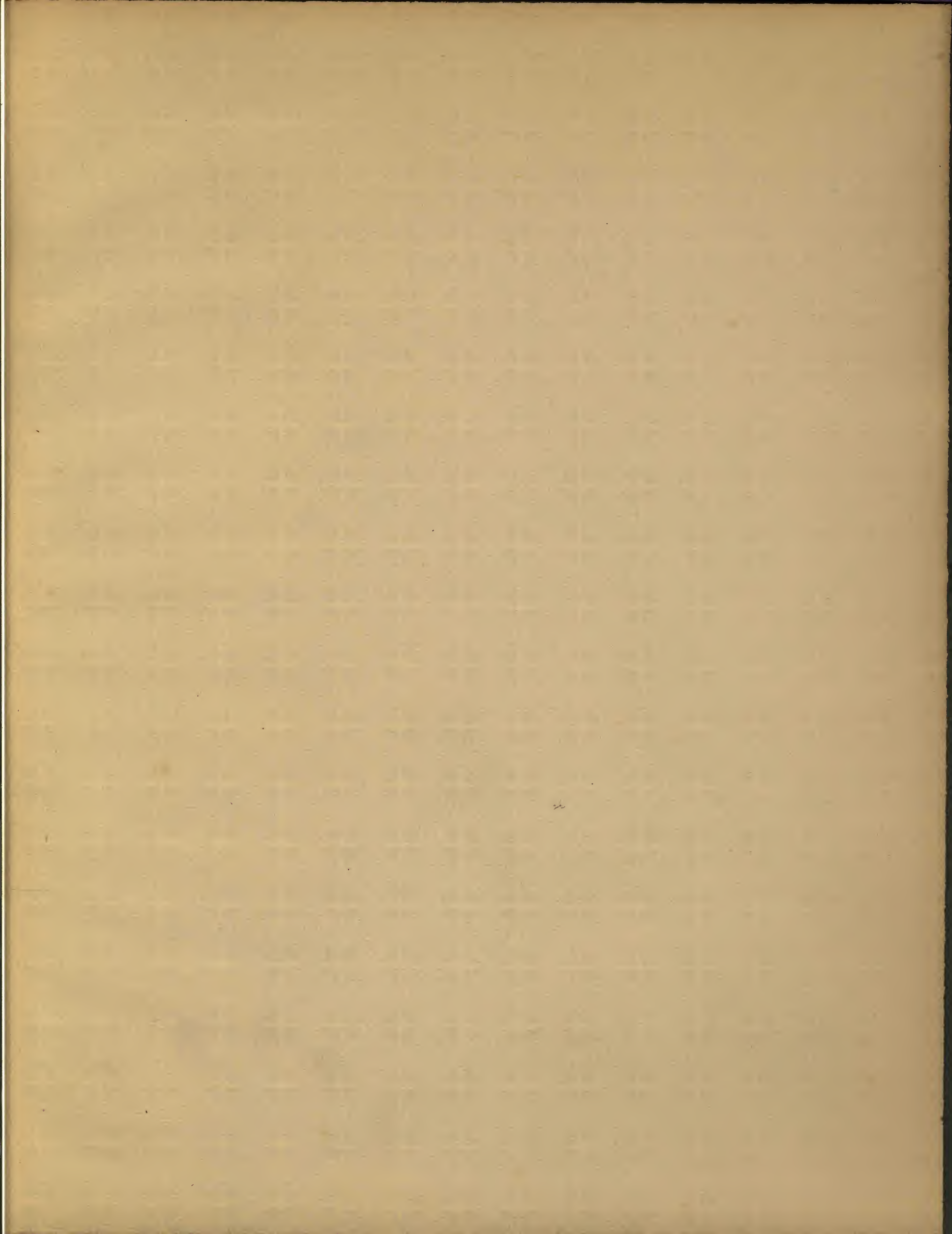


IN BUILDING *the Shrine of the Sacred Heart, and the other structures illustrated, materials of high quality, of uniform standard, were essential.*

The quality that made Atlas the preferred Portland Cement for these achievements makes it equally desirable for all types of concrete construction, and serves to keep Atlas known as "the Standard by which all other makes are measured."

It is a matter of gratification to the Atlas Portland Cement Company that its products, Atlas Portland Cement and Atlas White Portland Cement, have been selected by Mr. Earley as the logical materials with which to develop this new technique in concrete.











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